Mass-market GLONASS Applications

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JSC “Navigation-information systems”
### Multi-constellation in space

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<td>Global system – market standard</td>
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<td>GLONASS</td>
<td>Global system since 8 Dec. 2011</td>
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<td>Galileo</td>
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<td>Compass</td>
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### Multi-constellation on earth

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| **before 2010** | - GLONASS/GPS – only Russian producers  
- Only for motor transport (2010 – 100 thousand psc) |
| **2011** | - All world leaders announced about working on GLONASS/GPS chipsets  
- All world leaders announced about GLONASS/GPS equipment production for different purpose |
| **since 2012** | - GLONASS/GPS – mass-market standard in all price segments |

**Multi-constellation is a benefit for users:** better product for the same price – higher reliability, higher accuracy
Navigation market: forming, fast growing, global, high-tech

World navigation market 2011 more than $100 bln
Industry segments 2011-2020 rr.

Growth drivers of the Russian market:


2. Regional projects: regional special-purpose programs (РНИС, school busses, emergency ambulance, housing and utilities infrastructure), Intelligent Transport Systems (ITS Moscow), etc.

3. Consumer navigation: systems, equipment and services for car drivers, passengers and foot passengers

Source: European commission, May 2012

Basic conditions for implementation of navigation technologies have been provided: legislative framework, prepared and approved industry solutions for different tasks.
Development and implementation of GLONASS-based technologies

**Government agencies**
Agency programs (Ministry of Interior, EMERCOM, Federal Penitentiary Service and others)

**Russian regions**
Comprehensive regional GLONASS implementation projects, intelligent transportation systems for cities and national motorways

**For industries**
Russian Post, Transneft, Rosneft and others, road tolling systems (for vehicles over 12 tons)

**Olympics 2014 project**
Development of logistics and transportation center

**Government projects**
- ERA-GLONASS
- GLONASS-based transportation tolling system
- Hazardous freight transportation monitoring
- Digital tachographs (work-rest regime)

**Further development of regulatory and legal framework**
Legal framework has been established for implementation of GLONASS technologies. Refinement of regulatory and legal framework will accelerate the development of navigation information systems sector and adoption of GLONASS technologies.

**Globalization of GLONASS technologies**
Russian companies actively promote GLONASS technologies on international market. GLONASS-based systems, equipment and services, tested and proven in Russia, are offered for export.
GLONASS/GPS technologies should be used for modernization of transport system and transportation security

Size of the problem 2011:
damage from road accidents - 2.5 % GDP, 27 953 people died

- State system «ERA-GLONASS»
  - after 12.2013 - 40 mio vehicles
- Monitoring system of dangerous, bulky and heavy-weight cargo transportation
  - after 2013 - 150 thousand vehicles
- Control and dispatch systems (regional, urban)
- Drivers’ schedule of work and rest control system (digital tachographs)
  - after 2013 - 900 thousand vehicles
- Police patrol /EMERCOM monitoring and control systems
  - after 2015 - 5 mio vehicles
- Heavy truck tolling system
  - since 2011 - 200 thousand vehicles
- Intelligent transport systems and transport streams
  - after 2014 - 1,5 mio vehicles

13 megapolis, 19 cities with a population more than 500 thousand people

Basic requirements to the systems: federal or regional scale, combination with each other and with federal safety systems and international systems
Commercial potential: prepared service platform and the most popular navigation device

**ERA-GLONASS**

- **Safety and security on the roads**
  - **Social effect:** 4 thousand saved lives annually
  - **Testing:** since 12/2011
  - **Operation:** after 12/2013
  - **State service consumers:** Drivers and passengers

- **Tolling systems**
  - **Fair recovery of damages**
  - **Economic effect:** Replenishment of Federal and regional road funds
  - **Testing:** since 12/2012
  - **Operation:** after 07/2014
  - **State service consumers (1st stage):** 1,5 mio trucks (> 12 tonnes)

**Insurance telematics**

- **Social effect:** Road discipline growth
  - **Testing:** since 9/2012
  - **In the market:** after 6/2013
  - **Commercial service consumers:** cars’ owners

- **Services for car drivers**
  - **Ease and comfort on the road**
  - **Economic effect:** new big market
  - **Testing:** after 10/2012
  - **In the market:** after 8/2013
  - **Commercial service consumers:** cars’ owners

**Key and necessary market growth condition – functional expansion of «ERA-GLONASS» terminal**
Industry solutions

Precision farming
Agriculture with GNSS:
- 10% annual income increase
- 52% fuel cost reduction
- 67% labor cost reduction

Control systems for mining equipment
- > 12% increase of traffic volume
- 8% fuel consumption reduction
- 50% downtime reduction

High-precision integrated sensors
- Observation and control of forest fire danger
- Forest crime monitoring
- Identification of areas of low, medium and high forest pathology threat

Signal-searching device with self-contained power supply
- Signal-searching device sends signals on a user’s mobile phone or to the dispatch center while attempting to open the property or to take away the device.
Most mobile devices already have functions of satellite navigation

Navigation helmet for bikers

Photo and video cameras

Tourist navigator with a satellite communication channel

Navigation tracker for sport shoes

Navigation gadget for golf playing

Ski sunglasses

Baggage tracker

Tracker for animals

Coming soon «Google glasses»

New navigation gadgets and based on them services – new opportunities for people
Satellite navigation for children and handicapped people

Navigation for wheelchair users

I know how to get there!

Children, sick and elderly relatives monitoring

We ALWAYS know where our family and friends are!

Voice and tactile navigation for visually impaired people

Ease of movement!

Telemedicine (patient’s monitoring)

Help will come on time!

Navigation services provide additional safety and improvement of quality of life of the least socially protected groups
Effects on domestic GLONASS technology market

GLONASS-based projects and programs create a multiplicative effect on growth in Russian innovation sector, and contribute to greater efficiency in various sections of national and regional economy.
Thank you for your attention!

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